

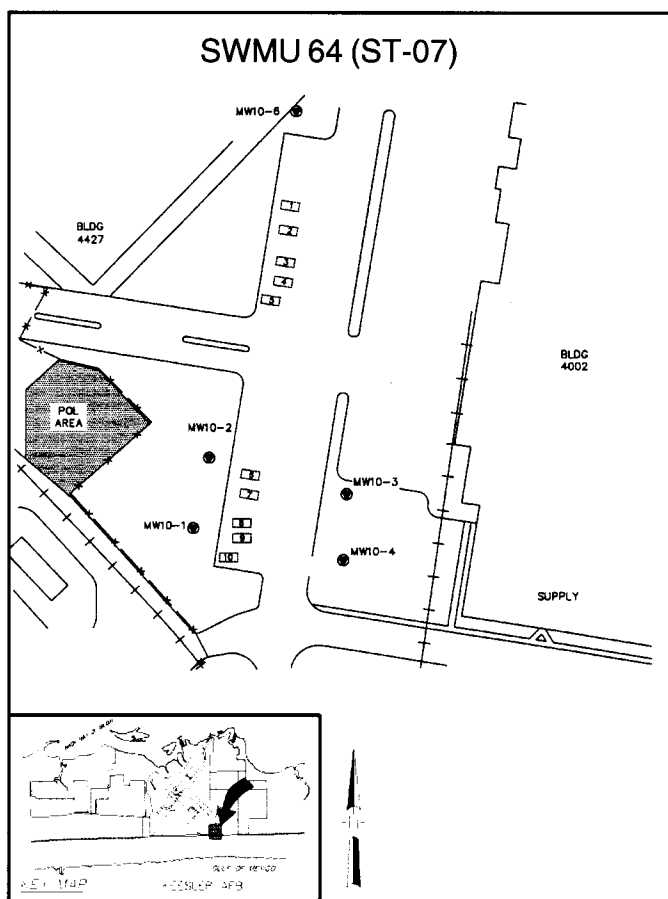


KEESLER AIR FORCE BASE INSTALLATION RESTORATION PROGRAM KEESLER AFB, MISSISSIPPI

Statement of Basis - Solid Waste Management Unit (SWMU) 64

IRP SITE DESIGNATION

Old Military Service Station USTs: Resource Conservation Recovery Act (RCRA) Site Code: SWMU 64, Installation Restoration Program (IRP) Site Code: ST-07.



INTRODUCTION

Keesler Air Force Base (Keesler AFB) is located within the city limits of Biloxi, Mississippi, on the peninsula bordered by the Back Bay of Biloxi and the Mississippi Sound. The Old Military Service Station (SWMU 64, ST-07) is located in the southeastern portion of the Base. Ten abandoned

steel underground storage tanks (USTs) were associated with this site. Six of the tanks were used to store automotive gasoline, one was used to store kerosene, two were used to store diesel fuel, and one was used to store mixed solvents. The USTs were in service between 1941 and 1955, closed in 1965, and removed from the site in 1987. Following tank excavation and removal, the former tank pits were

backfilled with clean soils and paved with asphalt. The site is now part of "Z" Street.

This paper, called a Statement of Basis, is part of the cleanup planning process and is a requirement of the RCRA permit issued by United States Environmental Protection Agency (USEPA). The proposed remedy (cleanup method) is explained along with any other possible remedies that have been evaluated. Public comment and participation in the remedy selection process is requested.

The proposed remedy for SWMU 64 (ST-07) includes implementation of long-term groundwater monitoring and land use controls (LUCs) which include groundwater use restrictions and land use restrictions.

The information presented in this Statement of Basis summarizes the information obtained from previous investigations conducted at SWMU 64 (ST-07). Detailed information concerning this SWMU can be found in the RCRA Facility Investigation (RFI)/Group 1 Sites Report (RFI, April 1999). This document is available in the Administrative Record. The Administrative Record is located at the information repositories identified later in this Statement of Basis.

The public is encouraged to comment and participate in the remedy selection. The public is also encouraged to review the Administrative Record. The USEPA will select a final remedy for SWMU 64 (ST-07) only after the public comment period has ended, and the comments received are reviewed and considered.

PUBLIC COMMENT PERIOD AND PUBLIC MEETING

The public is encouraged to provide comments regarding the corrective action alternatives provided in the RFI Report (April 1999). In addition, the public may comment on any other corrective action alternatives, including those not previously evaluated. The public is also invited to provide comments on corrective action alternatives not presented in the above mentioned documents.

Important dates to remember

Public comment period begins:
January 13, 2000

Public comment period ends:
February 26, 2000

Please note, written comments must be postmarked no later than midnight, **February 26, 2000**. A public meeting will be held, if requested. During the public meeting, USEPA, the Mississippi Department of Environmental Quality (MDEQ), and the U.S. Air Force will be available to respond to oral comments and questions.

The Administrative Record for SWMU 64 (ST-07) is available at:

Biloxi Public Library
Reference Section
139 Lameuse Street
Biloxi, Mississippi
Mon., Tue., Wed., 9 A.M. to 8 P.M.
Thu., Fri., Sat., 9 A.M. to 5 P.M.

Comments received will be summarized and responses will be provided in the Responses to Comments document. The Responses to Comments document will be prepared following the close of the public comment period. The comments and corresponding responses, and the Responses to Comments will be included with the final permit modification in the Administrative Record.

To request further information please contact:

Ms. Lisa Noble
Keesler AFB, Mississippi
(228) 377-8255
lisa.noble@keesler.af.mil

or

Mr. Robert Pope
U.S. Environmental Protection Agency, Region IV
(404) 562-8506
pope.robert@epamail.epa.gov

or

Mr. Bob Merrill
Mississippi Department of Environmental Quality
(601) 961-5049
bob_merrill@deq.state.ms.us

Submit written comments to:

U.S. Environmental Protection Agency
Attention: Mr. Robert Pope
U.S. Environmental Protection Agency, Region 4
Federal Facilities Branch
61 Forsyth Street
Atlanta, GA 30303

Comments must be postmarked no later than midnight, **February 26, 2000**.

PROPOSED REMEDY

USEPA is proposing long-term groundwater monitoring and LUCs which include groundwater use restrictions and land use restrictions. The costs associated with this remedy is estimated to be \$2,000-\$3,000 per year for a minimum of five years.

SWMU 64 (ST-07) DESCRIPTION

The Old Military Service Station is located in the highly developed, southeastern portion of the Base along Z Street, west of Building 4002, and within 60 meters of the petroleum, oil, and lubricants (POL) area. Ten abandoned steel Underground Storage Tanks (USTs) were associated with this site. Six of the tanks were used to store automotive gasoline, one was used to store kerosene, two were used to store diesel fuel, and one was used to store mixed solvents. The USTs were placed in service between 1941 and 1955, closed in 1965, and removed from the site in 1987. Following tank excavation and removal, the former tank pits were backfilled with clean soils and then paved with asphalt. This site is now a part of Z Street.

SWMU 64 (ST-07) Investigations and History

One soil sample was collected from directly under each UST immediately after it was removed from the ground in 1987. These samples were analyzed for total petroleum hydrocarbons (TPH), toxicity, and selected volatile organic and inorganic compounds. Six shallow groundwater monitoring wells (MW10-1 through MW10-6) were installed around the abandoned tanks, including locations upgradient (MW10-5) and downgradient (MW10-1, 10-2, 10-3, 10-4, and 10-6) of SWMU 64 (ST-07). Groundwater flows generally to the north.

An RFI was conducted at SWMU 64 (ST-07) in 1992. The RFI consisted of soil borings, installation of two shallow temporary wells to inspect the water table for possible free floating product and to evaluate the presence or absence of chemicals in groundwater. These investigations were conducted to further characterize the nature and extent of contamination at SWMU 64 (ST-07).

Based on the 1992 groundwater sampling results, groundwater samples were collected in 1996 using the slow purge method of sampling to minimize the amount of particulate matter suspended in the groundwater. The presence of particulates in a groundwater sample results in an overestimation of

metals because the metals present in both the water and the particulates are quantified. Therefore, groundwater samples collected in 1996 were analyzed for metals only to compare the results to the 1992 groundwater results.

SWMU 64 (ST-07) Investigation Results

Low levels of fuel constituents (hydrocarbons) were detected in the soils at locations randomly distributed in the former tank pit area. Groundwater chemicals at the site were limited to low levels of metals, and volatile (VOC) and semivolatile organic compounds (SVOC). Using soil and groundwater data collected during the RFI and groundwater data collected in 1996, a Human Health Risk Assessment (HHRA) was performed as part of the RFI. The RFI Report was submitted to the USEPA in April 1999. This Statement of Basis is based on the results of the RFI and the HHRA .

SUMMARY OF SWMU 64 (ST-07) RISKS

Soil and groundwater data from previous investigations, and additional groundwater data obtained in 1996 were used to evaluate human health risks associated with exposure to contaminants in the affected media (RFI Report, April 1999).

For human health, USEPA Region 4 has established a target level below which derived cancer risks and non-cancer hazards are considered to be acceptable. Risks were evaluated for current industrial workers, hypothetical future industrial workers, hypothetical future construction workers, and hypothetical future residents (both adults and children) and compared to the USEPA Region 4 target levels.

Current industrial workers at SWMU 64 (ST-07) were assumed to be exposed only to soils located at the surface (surface soil). All future receptors were expected to be exposed to contaminants in both surface and deep (subsurface) soil. In the future, excavation activities are assumed to result in deep soils being uncovered and brought to the surface, resulting in the deep soils becoming available for contact by the future receptors. In addition, hypothetical future industrial workers and hypothetical future residents were expected to be exposed to groundwater.

Using USEPA Region 4 methodology, Chemicals of Concern (COCs) were identified for the hypothetical future industrial workers and residents [total scenario cancer risk greater than or equal to 1×10^{-4} (one in 10,000) and total scenario hazard (non-cancer effects) greater than or equal to 1.0]. Although COCs were identified for the hypothetical future resident, it should be noted that, given the current industrial use of the site and anticipated future use as an industrial area, it is highly unlikely that residential development will ever occur at SWMU 64. Although the hypothetical future resident is not expected to live at the site, this group was included in the risk assessment to allow a health-protective evaluation of the soil and groundwater at SWMU 64. The total risks and hazards derived for all other receptors were below the USEPA target levels for cancer and non-cancer effects.

Human Health COCs in soil and groundwater for future receptors at SWMU 64 were identified per USEPA Region 4 guidance. Arsenic in groundwater was identified as a COC for both the hypothetical

future residents and the industrial worker. In addition, based on the ARAR comparison, bis(2-ethylhexyl)phthalate and antimony in groundwater and TPH in subsurface soil were identified as COCs at SWMU 64. TPH was identified as a COC in subsurface soil because the maximum detected concentration onsite exceeded the MDEQ UST cleanup level.

The COCs identified from the human health risk assessment for the future industrial workers are presented in the following table along with applicable ARARs and associated cancer and non-cancer risks. The future industrial worker is the most probable future on-site receptor at SWMU 64.

Arsenic has consistently been detected in groundwater at the site at concentrations exceeding groundwater standards in MW10-3 and MW10-4. The arsenic, however, is not associated with past site activities and may be the result of pesticide use in the area since consistently elevated detections are associated with a grassy area of the site. In areas of the site covered with pavement, arsenic concentrations

Medium	COC (1)	Maximum Detected (2)	Federal MCL (3)	MS MCL(4)	Exposure Routes (5)	Cancer Risk (6)	HQ (7) (non-cancer)
Groundwater	Arsenic	2×10^{-1}	5×10^{-2}	5×10^{-2}	Ingestion/ Dermal	1×10^{-3}	7
	Antimony	2×10^{-2}	6×10^{-3}	6×10^{-3}	Exceeds ARAR	N/A	N/A
	Bis(2-ethylhexyl)phthalate	7×10^{-3}	6×10^{-3}	6×10^{-3}	Exceeds ARAR	4×10^{-7}	0.004
Subsurface Soil	TPH	3×10^{-2}	—	1×10^{-2} (8)	Exceeds ARAR	ND	ND
<p>(1) Chemical of Concern</p> <p>(2) Maximum Detected Value. Units in mg/L (water) or mg/kg (soil).</p> <p>(3) Maximum Contaminant Level, EPA 1996. Units in mg/L.</p> <p>(4) Maximum Contaminant Level, MSDEQ 1991. Units in mg/L.</p> <p>(5) Pathways of exposure resulting in a chemical being identified as a COC.</p> <p>(6) Total risk = ingestion + dermal risk, where appropriate.</p> <p>(7) Total Hazard Quotient = ingestion + dermal HQ, where appropriate.</p> <p>(8) MSDEQ UST Regulations 1991. Units in mg/kg.</p> <p>N/A Not applicable. Antimony was not identified as a COC and therefore, was not quantitatively evaluated in the risk assessment.</p> <p>ND Not Derived given lack of appropriate toxicity values.</p>							

are not elevated. It is likely that the arsenic found in the pesticides infiltrated the soils in the grassy area and impacted groundwater.

The majority of the risk derived for the receptors was associated with groundwater contact (drinking and bathing in water obtained from a hypothetical well located on the site). It should be noted that Keesler AFB currently obtains drinking water from a municipal source and it is not likely that any future group will obtain drinking water from a well drilled onsite. Exposure to groundwater beneath the site, therefore, is considered to be highly unlikely for any future receptor group.

Although arsenic, antimony, and bis(2-ethylhexyl)phthalate were identified as COCs in groundwater, they are not considered to be COCs to be cleaned up at the site because neither current nor future receptors will use the site groundwater as drinking water.

The only COC to be further evaluated is TPH in subsurface soil. The maximum detected concentration (MDC) of TPH and the recommended cleanup value are presented below for subsurface soil:

COC	MDC Subsurface Soil (mg/kg)	Recommended Cleanup Level (mg/kg) (1)
TPH	290	100

(1) - The recommended cleanup value is the MDEQ UST regulation.

In subsurface soil, the MDC for TPH exceeded the recommended cleanup level.

An ecological characterization was performed to evaluate pathways for exposure of wildlife and vegetation to site contaminants (RFI Report, April 1999). The conceptual model indicated that there are no complete exposure pathways at this site. The site and surrounding area are developed; therefore, a baseline ecological risk assessment of the site was not conducted.

CORRECTIVE ACTION SCOPE

The Corrective Action proposed in this Statement of Basis is intended to be the only corrective action taken at SWMU 64 (ST-07). Long-term

groundwater monitoring is recommended for the site to monitor the concentrations of arsenic in the groundwater. Although TPH values in the subsurface soil exceed the cleanup level, the site is covered by pavement; therefore, it is recommended to allow natural biodegradation processes to decrease the concentrations of TPH. Land use controls, which include restrictions on groundwater use and future development of the site, will also be implemented. These actions pose no threat to human health or the environment based on current site conditions at SWMU 64 (ST-07). Annual reporting of the groundwater sampling results and site status are required as part of the remedy.

CURRENT ACTIVITIES AT SWMU 64 (ST-07)

This document will be provided in the Administrative Record. Long-term groundwater monitoring was implemented in June 1999 at SWMU 64 and will continue for a minimum of five years.

CORRECTIVE ACTION ALTERNATIVES SUMMARY

Groundwater was identified as a medium of concern at SWMU 64 (ST-07) based on exceedence of MCL values. The primary groundwater issue is the presence of elevated concentrations of arsenic in two monitoring wells: MW10-3 and MW10-4. Long-term groundwater monitoring, therefore, is recommended for the site to monitor the concentration of arsenic in groundwater in these two wells. The groundwater and land use controls will prevent future development of the site and also prevent the usage of site groundwater by potential human receptors.

Although the concentration of TPH in the subsurface soil exceeded the MDEQ UST value of 100 mg/kg, active remediation is not proposed to address this issue. The other detections of TPH in subsurface soil ranged from 82 to 150 mg/kg, with the maximum detected concentration being 290 mg/kg. Although these values exceed the cleanup level, the site is covered by pavement and it is expected that this low concentration of TPH will be degraded to the cleanup level by natural processes in the soil. These corrective action alternatives are the only alternatives considered for SWMU 64 because no individual Corrective Measures Study was completed for this site.